

improper.

Independent claim 40 recites *inter alia* “ means for coupling said first and second paths including means for rotating the polarization of the signal in a plurality of increments from said first polarization to said second polarization.” From the Office Action it is apparent that the Examiner did not understand this feature of the claim.

Nuding rotates the polarization of the signal in a single increment. For example as shown in Figure 1 and 2b, the polarization goes from the polarization of wave guide 1 to the polarization of wave guide 2 in one step. The flanges of Nuding (7,8) reflect respectively the polarization of their associated wave guides. Therefore, in no way is the polarization of the signal from a first polarization rotated in a plurality of increments to the second polarization.

Nuding discloses that the wave guide may be twisted or pivoted +/- alpha with respect to the cross section of the wave guide at positions II or III. This however is irrelevant. Since the claim language requires the signal be rotated in a plurality of increments between two polarizations. This feature is not satisfied by a wave guide capable of rotating the polarization of a signal one of a plurality of increments between +/- 45 degrees, as suggested by the Office Action. This is a salient distinction; it is the distinction akin to making multiple rotations vs. making rotation selected from many possible rotation magnitudes.

The Office Action has clearly misapplied and misinterpreted the cited art. Nuding does not disclose each and every feature of independent claim 40 and thus the anticipation rejection should be withdrawn. Likewise the rejection of claims 41-53 should be withdrawn as they depend from claim 40, notwithstanding additional patentable features present therein.

Independent claim 54 recites *Inter alia* “...wherein a signal propagating has a first polarization in said first path and a second polarization in said second path, the improvement

wherein the polarization of the signal is rotated in a plurality of increments.” Thus ,for the same reasons discussed in regards to claim 40, the rejection of claim 54 is improper and should be withdrawn. Likewise the rejection of claims 55 and 56 should be withdrawn as they depend from claim 54.

Independent claim 57 recites *inter alia*, “...and a coupler configured for a third polarization, the improvement wherein said coupler is configured to effect substantially equal changes in the polarization of a signal propagating through said system at the junction of said first wave guide and said coupler and at the junction of said coupler and said second wave guide.”

Nuding discloses one polarization change of the signal, not a plurality of polarization changes to the signal. Therefore, changes in polarization at two junctions, much less equal changes, cannot be construed disclosed by Nuding. The rejection of claim 57 as being anticipated by Nuding is improper and should be withdrawn.

Likewise, the rejection of claims 58 and 59 should also be withdrawn as they depend from Claim 57.

Independent claim 63 recites *inter alia* “ rotating the polarization of the signal at the end of the first wave guide in a direction determined by the relative polarization difference between the first wave guide and the coupler; and, rotating the polarization of the signal at the beginning of the second wave guide in a direction determined by the relative polarization difference between the coupler and the second wave guide.”

Nuding, as discussed above, **rotates the polarization of the signal once;** therefore, in no way can Nuding disclose two rotating steps. Additionally, Nuding discloses rotating the polarization determined by the relative polarization difference between the first wave guide and

the second wave guide. Thus, the anticipation rejection of claim 63 is improper and should be withdrawn.

Independent claims 64 and 65 recite *inter alia* “rotating the polarization of the signal at the end of the first wave guide in a first direction and rotating the polarization of the signal at the beginning of the second [first] wave guide the same amount and in the same direction [or different direction for claim 65]”.

Again Nuding rotates the polarization of the signal once. Thus, a method with more than one polarization rotation can not be disclosed. Thus, the anticipation rejections of claims 64 and 65 are improper and should be withdrawn.

Independent claim 66 recites *inter alia* “the step of coupling the antenna to the wave guide through a coupler configured for a single polarization different from both of the two polarizations.”

Nuding does not disclose a coupler configured for a signal polarization different from both of the two polarizations. In Nuding there are but two polarizations the first wave guide polarization and the second wave guide polarization. For a single polarization to be different from the two polarization would require a third polarization that does not exist in Nuding. Thus the anticipation rejection of Claim 66 is improper and should be withdrawn. Likewise the rejection of Claim 67 which depends from claim 66 is improper and should be withdrawn, irrespective of its additional patentable features.

Independent claim 83 recites *inter alia* “passing a signal from an input wave guide to an output wave guide through a polarization plate.” The Office Action admits (on page 3, line 22) that **“No polarization plate appears to be taught”**. For this reason and others related to the discussion above, the rejection of Claim 83 as being anticipated by Nuding is improper and

should be withdrawn. Likewise, the rejections of claim 84-86 are improper and should be withdrawn as they depend from claim 83 irrespective of their additional patentable features.

The rejection to claim 88 is improper and should be withdrawn for the same reasons elaborated in regards to the rejection of Claim 63.

Rejection under 35 U.S.C. § 103(a)

The Office Action rejected Claims 68-78, 81, 82 and 87 as being obvious over Nuding in view of Seavey US Patent No. 4,065,772. The Applicants submit the rejection is improper.

As noted before the Office Action acknowledges that “No polarization plate appears to be taught” in Nuding. Thus, the Office Action uses Seavey to provide the polarization plate.

The patent to Seavey does not remedy the deficiencies of Nuding. The surface 12 shown in Figure 4 is not a polarization plate as asserted, but the surface at the end of the rear launcher section. More specifically, Seavey teaches a horn for radiating circularly polarized energy where the end of the horn is square in cross-section with the plane of polarization so that the polarization of the wave exiting the device is along the diagonal of the square.

Since Seavey is directed to elliptical and circular polarization systems, there is not a teaching with respect to the substitution of the horn of Seavey for the mating flanges of Nuding. From the Examiners analysis, one skilled in the art would attempt to take the rear launcher 11 and place this between the two wave guides disclosed in Nuding. One skilled in the art would not attempt to combine the two references as the Examiner has in attempting to render the claims obvious.

Even if the teachings of the cited patents were combined as the Examiner has attempted, the combination would not function as intended by Seavey, the combination would not function

as intended by Nuding and the combination would not function in the same manner, nor contain the same features as the device in the claims.

Independent claim 68 recited *inter alia* “ ...[a] polarization plate comprising a slot for propagating said signal wherein said slot is substantially similar in shape to said first passage and said second passage...”

The rear of the launching section 12 of Seavey, which the Examiner uses as a polarization plate, among other things, does not have a slot that is substantially similar in shape to the slots in the first and second wave guides (see figure 4).

It is clear that the Examiner is improperly attempting the hindsight reconstruction of the claims using teachings found only in the present invention. Therefore the rejection of claim 68 should be withdrawn. Likewise the rejections of claims 69-78, 81 and 82 should be withdrawn as these claims depend from claim 68, irrespective of their additional patentable features.

Independent claim 87 recites *inter alia* “ ... the step of passing the signal through a polarization plate which effects two successive forty five degree rotations of the polarization of the signal”.

The asserted combination of Nuding and Seavey fails to disclose “two successive forty five degree rotations” as discussed in reference to the rejections of claims 63-65. Therefore, the rejection of claim 87 is improper for lack of a teaching to combine (as discussed in regards to the rejection of Claim 68) and also for failing to show, teach or suggest every feature of the claim. The rejection should be withdrawn.

#### Claim Objections

Claims 79 and 80 are believed to depend from allowable base claims for the reasons above and thus should be allowable.

### CONCLUSION

The examiner appears to have substantively misread the cited patents and the present claims. The proposed combinations do not contain all the elements, do not teach such combinations and result in apparatus that is inoperable for the intended purposes of the cited references. All the present claims are believed to be allowable over the cited art. The allowance of the application is accordingly solicited.

Respectfully submitted,

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re the Patent Application of McCandless, et al.

Serial No.: 10/075,387

Art Unit: 2821

Filed: February 15, 2002

Examiner: M. Wimer

Title: POLARIZATION PLATE

**EXHIBIT A**

63. (Amended) A method of coupling a signal propagating from a first wave guide configured for a first polarization to a second wave guide configured for a second polarization through a coupler configured for a third polarization comprising the steps of:

(a) rotating the polarization of the signal at the end of the first wave guide in a direction determined by the relative polarization **difference between** [of] the first wave guide and the coupler; and,

(b) rotating the polarization of the signal at the beginning of the **second** [first] wave guide in a direction determined by the relative polarization **difference between** [of] the coupler and the **second** [first] wave guide.

66. (Amended) A method of operably coupling an antenna configured for either of two polarizations to a wave guide configured for either of the same two polarizations comprising the step of coupling the antenna to the wave guide through a coupler configured for a single polarization differing from both of the two polarizations. [have s passing having a second polarization]